

## Oral abscess associated with cranial tooth loss in green iguana (*Iguana iguana*)

Tzvetan CHAPRAZOV<sup>1</sup>, Rosen DIMITROV<sup>2,\*</sup>, Kamelia STAMATOVA YOVCHEVA<sup>2</sup>

<sup>1</sup>Department of Veterinary Surgery, Faculty of Veterinary Medicine, Trakia University, Stara Zagora, Bulgaria

<sup>2</sup>Department of Veterinary Anatomy, Histology, and Embryology, Faculty of Veterinary Medicine, Trakia University, Stara Zagora, Bulgaria

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**Abstract:** The aim of this study was to describe the morphology and results of treatment of an iguana's oral abscess. A case of unilateral oral abscesses with tooth loss in a male green iguana (*Iguana iguana*) was presented. Gingival necrosis and a pocket of caseous yellow-gray pus were visible in the soft tissues. Some cranial teeth were found loose within the necrotic tissue. Radiographic study showed decreased bone density. Treatment of the abscess involved opening up the pus-filled abscess and manually cleaning it out. The bacteriology confirmed a culture of *Pseudomonas aeruginosa* sensitive to enrofloxacin, gentamicin, and chloramphenicol.

**Key words:** Green iguana, bacterial infections, abscess, morphology

### 1. Introduction

*Pseudomonas* spp., and especially *P. aeruginosa*, are commonly found as part of the normal flora in the oral cavity and intestinal tract of reptiles and are frequently isolated from lesions of ulcerative stomatitis or abscesses (1).

Reptile pus is of a cheesy, sometimes rubber-like consistency. Consequently, treatment of abscesses involves opening up the pus-filled abscess and manually cleaning it out. Antibiotics are then infused directly into the cavity and are also given by injection (2).

Enrofloxacin and its active metabolite, ciprofloxacin, are capable of inhibiting the growth of pathogenic bacteria at serum levels of approximately 0.1 µg/mL. Reptiles have a renal portal system, with blood from the caudal half of the body going to the kidneys before reaching systemic circulation. The parenteral treatment of the abscess should be given in the cranial half of the body (3).

This study describes an oral abscess with cranial tooth loss in a green iguana (*Iguana iguana*) that was not associated with topical antibiotic therapy. The goal of the current study was to describe the morphology, radiology, etiology, and subsequent results of treatment of an iguana's oral abscess.

### 2. Case history

A 4-year-old male green iguana (*Iguana iguana*) weighing 3.6 kg was brought to the Small Animal Clinic at the Faculty of Veterinary Medicine, Trakia University, Stara Zagora, Bulgaria. This iguana was kept as a single animal in a terrarium (width 250 cm, height 200 cm, length 200 cm) that was heated to a maximum temperature of 35 °C.

The photoperiod was 12 h of light a day. The diet consisted of vegetables (4). The iguana had never been treated previously. The reason for the visit to the clinic was apathy, low feed consumption, and cranial soft tissue edema.

The study was done with stationary roentgen set TUR 800 D-1 (Dresden, Germany) with a digital touch screen apparatus, iQ-CR ACE, which is a CR reader to digitize X-ray imaging. Dorsoventral radiographs were taken with focus-film distance of 100 cm, kilovolt peak of 125 kV, and milliamperere per second rate of 500 mAs.

A caseous pus sample was sent to the Department of Veterinary Microbiology at the Faculty of Veterinary Medicine, Trakia University, Stara Zagora, Bulgaria, and it was submitted to a laboratory for bacterial culturing and antibiotic sensitivity testing (Kirby-Bauer disk diffusion method).

The animal was sedated with 10 mg/kg Zoletil 50 (tiletamine hydrochloride, 125 mg, and zolazepam hydrochloride, 125 mg, in 5 mL of solution; Virbac, France) (5).

Treatment was initiated with the surgical removal of the caseous material and debridement followed by irrigation with Iodseptadon 10% dermal solution (Himax Farma EOOD, Sofia, Bulgaria) containing 10% povidone-iodine. Baytril (5%; enrofloxacin 50 mg/mL; Bayer Healthcare LLC, Animal Health Division, Shawnee Mission, KS, USA) was applied at 5 mg/kg intramuscularly twice a day for 5 days after the surgical intervention.

The study was approved by decision of the Institutional Committee of Animal Care (No. 51, 29 September 2012).

\* Correspondence: rosiros38@abv.bg

### 3. Results and discussion

The iguana showed apathy and anorexia, increased salivation (Figure 1), and difficulty eating. Clinically, there was a deformation in the facial structures and no external abnormalities were visible. The head was quite swollen to the left (Figure 2).

The mucosa of the oral cavity and tongue were pale with local erosion to the soft gum tissue of the mouth. Gingival necrosis and a pocket of caseous yellow-gray pus were visible in the soft tissues on left side (Figure 3). Three cranial teeth (in the cranial dental arcade) were found to be coming loose within the necrotic tissue.

Dorsoventral survey radiograph showed an abnormal radiolucent area in the cranium to the left side of the upper jaw (Figure 4) and decreased bone density.

The bacteriology confirmed a culture of *Pseudomonas aeruginosa*, sensitive to enrofloxacin, gentamicin, and

chloramphenicol. The culture had been obtained both from the oral cavity and the cloaca, specifically named a “combo culture”.

Six days after the surgical removal of the caseous material and debridement (Figure 3), irrigation with Iodseptadon (10%), and injectable antibiotic therapy with Baytril (5%), the laboratory culture was negative.

The control examination of the patient was performed 1 week after the operative intervention and the cleaning out of the pus. The iguana was in good condition. The check-up confirmed that the animal had maintained its body weight and continued to eat well. The lesions responded well to antibiotic therapy.

Abscesses are commonly seen along the mandibular and maxillary bones in the green iguana (6). In most cases,



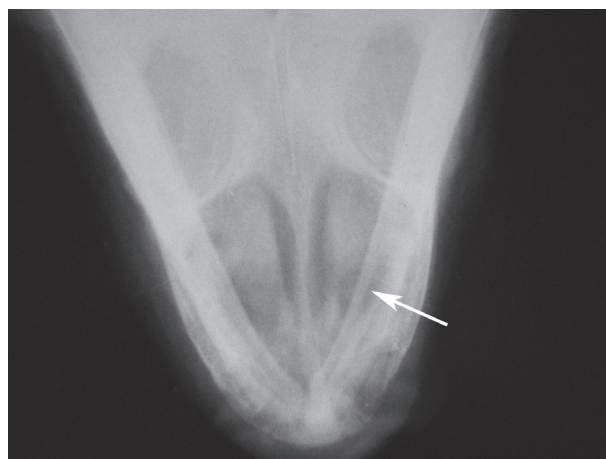
**Figure 1.** Increased salivation with mouth reddening. Saliva was thickened and rope-like.



**Figure 3.** Gingival necrosis and a pocket of caseous pus to the left side of the upper jaw.



**Figure 2.** Unilateral head swelling (around the mouth) with slight bleeding.



**Figure 4.** Osteolysis in the underlying cranial bone with decreased density.

these abscesses communicate with the oral cavity along the lateral surface of the mandibular or maxillary bones.

Abscesses have recently been said to be more accurately termed as fibriscesses due to the unique nature of the reptile abscess formation (2). Reptiles form a solid, caseous, dried swelling structure surrounded by a thick shell of fibrous tissue. Our case confirmed these clinical symptoms. The pus of the infection was observed with a cheesy substance, yellowish in color.

Survey radiography is one of the most useful tools when diagnosing oral disease in lizards (7). In our case, the radiographic examination showed the local affected maxillary bones without osteolysis.

Reptiles have a much lower metabolic rate than mammals, and this is reflected by the fact that they excrete drugs at slower rates (8).

Green iguanas given injectable enrofloxacin by mouth at 5 mg/kg had therapeutic plasma concentrations of the drug (0.2 µg/mL). However, enrofloxacin does not appear to be metabolized to ciprofloxacin in significant amounts

in green iguanas. This result suggested that the parenteral route would be more suitable than oral administration for the treatment of critical infections in green iguanas (9).

In green iguanas (*Iguana iguana*) administered enrofloxacin at 5 mg/kg either orally or intramuscularly and maintained at 30 °C, mean maximal plasma concentration was 1.16 µg/mL after oral administration and 2.3 µg/mL after intramuscular administration. Therapeutic plasma concentrations were maintained 31.7 h after oral administration and 16 h following intramuscular administration. In our case, the animal was administered enrofloxacin only for 6 days with adequate response to antibiotic therapy (10).

The results of our case report indicate that after surgery and surgically removing all of the infectious material, a Baytril dosage of 5 mg/kg intramuscularly, twice daily for 5 days, should achieve minimum inhibitory concentration values adequate for aggressive successful treatment of oral abscesses with bacterial etiology in green iguanas. The surgical and antibiotic treatments have not been repeated.

## References

1. Durmuş AS. A case report of periorbital hematoma and its treatment in a chameleon. *FÜ Sağlık Bil Dergisi* 2005; 19: 161–163 (article in Turkish with an abstract in English).
2. Chaprazov TS, Georgiev D, Borissov I. Surgical management and antibacterial therapy of a bite wound in a green iguana (*Iguana iguana*). *Bulgarian J Vet Med* 2010; 13: 259–263.
3. Mader DR. A practical approach to antibiotic therapy in exotic pets. *Proc North Am Vet Conf* 2002; 16: 927–931.
4. Uzunova, K.: Hygiene, Ethology and Animal Protection. Stara Zagora, Bulgaria: Jemmy Stratus Ltd.; 2011.
5. Dinev D, Simeonova G. Reptiles' anesthesia. In: Dinev D, editor. *Veterinary Anesthesiology*, 3rd ed. Stara Zagora, Bulgaria: Kota Publishing House; 2009. pp. 151–155.
6. Maxwell LK. Infectious and noninfectious diseases. In: Jacobson ER, editor. *Biology, Husbandry, and Medicine of the Green Iguana*. Malabar, FL, USA: Kreiger Publishing Co.; 2003. pp. 108–132.
7. Schumacher J, Toal RL. Advanced radiography and ultrasonography in reptiles. *Semin Avian Exotic Pet Med*, 2001; 10: 162–168.
8. Mader DR. Common bacterial disease and antibiotic therapy reptiles. *Comp Ed Pract Vet*, 1998; 20 (3A Suppl): 23–33.
9. Ebani VV, Fratini F, Ampola M, Rizzo E, Cerri D, Andreani E. *Pseudomonas* and *Aeromonas* isolates from domestic reptiles and study of their antimicrobial in vitro sensitivity. *Vet Res Commun* 2008; 32: 195–198.
10. Maxwell LK, Jacobson ER. Preliminary single-dose pharmacokinetics of enrofloxacin after oral and intramuscular administration in green iguanas (*Iguana iguana*). *Proc Am Assoc Zoo Vet*, 1997; 25.